

What is Claimed is:

1. A plasma processing apparatus comprising:
 a plurality of plasma processing units, each having a vacuum processing chamber including a mounting stage for mounting a substrate with a reference point and a wave guide for introducing high frequency waves into said vacuum processing chamber for converting process gas to plasma by high frequency waves and processing said substrate by said plasma; and
 a common transfer chamber which is airtightly connected to said plurality of plasma processing units and includes a transfer arm for transferring said substrate to said mounting stage in a fixed transfer direction and in a state that said reference point of said substrate is positioned with respect to said transfer arm,

wherein between said plasma processing units, location relationship of said wave guide to said transfer direction of said transfer arm is the same.

2. The plasma processing apparatus according to Claim 1, wherein
 said process to be performed for said substrate is a film forming process.

3. The plasma processing apparatus according to Claim 1, wherein
 said process to be performed for said substrate is an etching process.

4. The plasma processing apparatus according to Claim 1, further comprising: positioning means for positioning said reference point of said substrate to said transfer arm.

5. A plasma processing apparatus according to Claim 1, wherein
 each of said plasma processing units is connected to said transfer chamber through a transfer port and said transfer direction of said transfer arm is on a straight line connecting the center of said mounting stage and the center of said transfer

port.

6. The plasma processing apparatus according to Claim 1, wherein each of said plasma processing units converts a process gas to plasma using electron cyclotron resonance by high frequency waves and an electric field.

7. The plasma processing apparatus according to Claim 1, wherein
 wave guide of each of said plasma processing units has the same length and the same sectional shape.

8. A plasma processing method for performing a predetermined process for a substrate by a plasma processing apparatus comprising a plurality of plasma processing units, each having a vacuum processing chamber including a mounting stage for mounting a substrate with a reference point and a wave guide for introducing high frequency waves into said vacuum processing chamber for converting process gas to plasma by high frequency waves and processing said substrate by said plasma; and a common transfer chamber which is airtightly connected to said plurality of plasma processing units and includes a transfer arm for transferring said substrate to said mounting stage in a fixed transfer direction, comprising the steps of:

transferring said substrate with a reference point to said mounting stages of said plasma processing units from said transfer chamber and making location relationship of said reference point of said substrate to be mounted on said mounting stage with respect to said wave guide the same among said plasma processing units and,

performing a plasma process for said substrate in a state that location relationship of said reference point of said substrate to be mounted on said mounting stage to said wave guide is kept the same between said plasma processing units.

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